

## Introduction

Problems involving numbers have been at the heart of Mathematics research since antiquity. The relevance of what is now known as Number Theory is reflected not only in such assertions as Gauss calling it “The Queen of Mathematics” but also in the central role it has always played in the developing of Mathematics, due to its highly interdisciplinary nature. Also, Number Theory contributes in a significant way to the applications of Mathematics to Technology through its influence in fields like Information Theory, Coding Theory or Cryptology.

It is therefore not surprising that Number Theory, in its different incarnations (analytic, algebraic, combinatorial, computational, arithmetic geometry, . . . and different mixtures of these), is a very active area of research throughout the world. This is also the case in Spain, but the Spanish Number Theory community has maybe not yet reached the necessary size to be seen as a really influential party in Spanish Mathematics.

There are well-established groups of number theorist in Barcelona. For 20 years now they have run the “Seminari de Teoria de Nombres de Barcelona” (STNB), and their international relevance was recognised when they were charged with organising the XIX Journées Arithmétiques in 1995. Outside Barcelona there is also quality research in Number Theory, but it is carried out by individuals or small groups.

Pilar Bayer was at the heart of the first editions of the STNB. At that time, the group chose one or two themes to study during the year and, in weekly meetings, different members discussed different aspects so as to reach a common understanding. This was a very efficient way to learn, but made it very difficult for people outside Barcelona to participate.

In 1999 STNB XIII adopted a new format: still the idea was to choose two topics, but the meeting was run as a weeklong intensive seminar. People from outside Barcelona could now participate and indeed they began to do so, even delivering some of the talks. But this was still identified as “local Number Theory”.

In 2004 some people thought that it was time to combine local and global, and the team at the Vilanova branch of the UPC offered to organise a broader meeting. From the very beginning it was clear that it should actively involve both Spanish and Latin-American number theorists.

In January 2005 the First Joint Mathematics Meeting (MAT.ES 2005), of RSME, SCM, SEIO and SEMA took place. Organising a Special Session on Number Theory there was seen as step 0 in the project.

And happily it was followed by step 1. These Proceedings contain most of the 18 talks delivered at the “Primeras Jornadas de Teoría de Números”, that met in Vilanova i la Geltrú from June 30th to July 2nd, 2005.

The 61 participants came from Argentina, Cuba, Chile, France, Germany, Greece, Lithuania, Spain, Switzerland and the USA. Since “only” 23 of them worked in Barcelona, we feel that the objective of broadening the realm of Number Theory in Spain was achieved. The meeting was also broad in the sense that it covered a wide variety of Number Theory themes.

We would like to thank *Publicacions Matemàtiques* for accepting to edit these Proceedings, the authors for submitting their work and the referees for helping us assure the quality of this publication.

We must also thank the Organising Committee for their hard work. Pep González, with his unending energy, and his younger colleagues (Gabriel Cardona, Julio Fernández, Jordi Guàrdia and Victor Rotger) have done everything necessary to make our stay in Vilanova enjoyable both from a mathematical and from a personal point of view.

We hope that this “Jornadas” have shown that Number Theory in Spain is quite lively and that they helped enhance contacts and eventual cooperation between different groups (in Spain and abroad), but this only time will tell. All in all we are quite happy with the results, and it is pleasure to announce that, as this Proceedings go to press, the first formal steps have been taken towards the organization of the “Segundas Jornadas de Teoría de Números” that will take place in Madrid in July 2007. We look forward to them and hope that they will be followed by “Terceras Jornadas” and so on, thus following the sequence of the most natural of our friends: Numbers.

The Editorial Committee

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